

Amendments to the Claims:

20. (New) A method for temporary marking an object (O) in a process chain, the method comprising the step of applying a coating composition (3) to the object (O) by a marking device, the said coating composition (3) comprising a short-lived radioactive isotope, wherein said short-lived radioactive isotope is generated in situ from a longer-lived radioactive precursor isotope and added to said coating composition (3) in said marking device.
21. (New) Method according to claim 20, wherein said short-lived radioactive isotope has a half-life time in the range of between a minute and a day.
22. (New) Method according to claim 20, wherein said short-lived radioactive isotope is a gamma-radiation emitter or a $\beta(+)$ -emitter.
23. (New) Method according to claim 20, wherein said short-lived radioactive isotope is selected from the group consisting of ^{99m}Tc , ^{60m}Co , ^{90m}Y , ^{103m}Rh , ^{106m}Rh , ^{137m}Ba , ^{144m}Pr , ^{144}Pr , ^{212}Pb , and ^{211}Pb .
24. (New) Method according to claim 20, wherein said coating composition (3) is applied to said object (O) by ink-jet printing or by a spraying operation.
25. (New) Method according to claim 24, wherein said ink-jet printing or spraying is of the drop-on-demand type.
26. (New) Method according to claim 20, wherein said coating composition (3) contains at least one binder.
27. (New) Method according to claim 20, wherein the application of said coating composition (3) is performed upon receipt of a particular signal by said marking device.
28. (New) Method according to claim 27, wherein said particular signal is an electric signal.

29. (New) Device suitable for temporary marking an object (O) in a process chain, said device comprising a short-lived radionuclide generator (1), a first reservoir (2) of a printing liquid, a splitting valve (5), a radiation monitor (6), a control unit (7) and a printing or marking head (8).

30. (New) Device according to claim 29, wherein said radionuclide generator (1) generates a gamma-emitting or $\beta(+)$ -emitting radioactive isotope, said radioactive isotope having a half-life time in the range of between a minute and a day.

31. (New) Device according to claim 30, wherein said radionuclide generator (1) generates a gamma-emitting short-lived radioactive isotope, which is selected from the group consisting of ^{99m}Tc , ^{60m}Co , ^{90m}Y , ^{103m}Rh , ^{106m}Rh , ^{137m}Ba , ^{144m}Pr , ^{144}Pr , ^{212}Pb , and ^{211}Pb .

32. (New) Device according to claim 29, wherein said printing or marking head (8) is an ink-jet printing head.

33. (New) Device according to claim 32, wherein said ink-jet printing head is a drop-on-demand ink-jet printing head.

34. (New) Device according to claim 29, wherein said device comprises further a second reservoir (11) which contains printing liquid, and a dosing pump (13), the printing liquid being free of radioactive isotopes.

35. (New) A system for temporary marking an object (O) in a process chain, said system comprising

a) at least one device for temporary marking an object (O); and

b) at least one detecting device for detecting the presence of the temporary marking on an object (O),

wherein said device for applying the temporary marking comprises a short-lived radionuclide generator (1), a first reservoir (2) of a printing liquid, a splitting valve (5), a radiation monitor

(6), a control unit (7) and a printing or marking head (8),
wherein said device is activated upon receipt of a signal, and
wherein said detecting device is capable of detecting gamma-radiation, and producing
a signal, upon detection of said temporary marking.

36. (New) The system according to claim 35, wherein said signal activating said device is an electric signal.

37. (New) The system according to claim 35, wherein said signal produced by said detecting device is an electric signal.

38. (New) A method for temporary marking and identifying an object (O), the method comprising the steps of

- applying a coating composition (3) to the object (O), by a marking device, wherein said coating composition (3) comprises a short-lived radioactive isotope; and
- identifying said temporary marking by detecting gamma-radiation emitted by the short-lived radioactive isotope;

wherein said short-lived radioactive isotope is generated in situ from a longer-lived radioactive precursor isotope and added to said coating composition (3) in said marking device.